

- The Pacific Standard Time Zone is near 120° west longitude, which passes through Lake Tahoe in California, and is 8 hours earlier than GMT.

Most of Alaska is in the Alaska Time Zone, which is 9 hours earlier than GMT; Hawaii and some of the Aleutian Islands are in the Hawaii-Aleutian Time Zone, which is 10 hours earlier than GMT; and eastern Canada is in the Atlantic Time Zone, which is 4 hours earlier than GMT.

Before standard time zones were created, each locality set its own time, usually that kept by a local jeweler. When railroads became the main cross-country transportation during the nineteenth century, each rail company kept its own time, normally that of the largest city it served. Train timetables listed two sets of arrival and departure times, one for local time and one for railroad company time. Railroad stations had one clock for local time and a separate clock for each of the railroad companies using the station.

To reduce the confusion from the multiplicity of local times, the railroads urged adoption of standard time zones. Standard time zones were established in the United States in 1883 and in the rest of the world following the international meridian conference in Washington, D.C., in 1884. At noon on November 18, 1883, time stood still in the United States so that each locality could adjust to the new standard time zones. In New York City, for example, time stopped for 3 minutes and 58 seconds to adjust to the new Eastern Standard Time.

Other localities were reluctant to make the adjustment. Chicago for example remained 17 minutes ahead of Central Standard Time for many years. Some places continue to tinker with standard time zones. Newfoundland is 3½ hours earlier than GMT, India 5½ hours later, and central Australia 9½ hours later. The residents of Newfoundland assert that their island, which lies between 53° and 59° west longitude, would face dark winter afternoons if it were 4 hours earlier than GMT, like the rest of eastern Canada, and dark winter mornings if it were 3 hours earlier than GMT.

When you cross the International Date Line, which for the most part follows 180° longitude, you move the clock back 24 hours, or one entire day, if you are heading eastward toward America; you turn the clock ahead 24 hours if you are heading westward toward Asia. To see the need for the International Date Line, try counting the hours around the world from the time zone in which you live. As you go from west to east, you add 1 hour for each time zone. When you return to your starting point, you will reach the absurd conclusion that it is 24 hours later in your locality than it really is.

Therefore, when the time in New York City is 2 P.M. Sunday (as shown in Figure 1-9), it is 7 P.M. Sunday in London, 8 P.M. Sunday in Rome, 9 P.M. Sunday in Jerusalem, 10 P.M. Sunday in Moscow, 3 A.M. Monday in Singapore, and 5 A.M. Monday in Sydney, Australia. Continuing farther east, it is 7 A.M. Monday in Wellington, New Zealand—but when you get to Honolulu, it is 9 A.M. Sunday, because the International Date Line lies between New Zealand and Hawaii.

The International Date Line for the most part follows 180° longitude. However, in 1997, Kiribati, a collection of small islands in the Pacific Ocean, moved the International Date

Line 3,000 kilometers (2,000 miles) to its eastern border near 150° west longitude. As a result, Kiribati is the first country to see each day's sunrise. Kiribati hoped that this feature would attract tourists to celebrate the start of the new millennium on January 1, 2000 (or January 1, 2001, when sticklers pointed out the new millennium really began). But it did not.

Regions: Areas of Unique Characteristics

The “sense of place” that humans possess may apply to a larger area of Earth rather than to a specific point. A person may feel attachment as a native or resident of the Los Angeles area, or the area of attachment could encompass southern California or the U.S. Southwest. An area of Earth defined by one or more distinctive characteristics is a region.

A region derives its unified character through the cultural landscape—a combination of cultural features such as language and religion, economic features such as agriculture and industry, and physical features such as climate and vegetation. Cultural landscape was defined by geographer Carl Sauer (1889–1975) as an area fashioned from nature by a cultural group. “Culture is the agent, the natural area the medium, the cultural landscape is the result.” The Los Angeles region can be distinguished from the New York region, southern California from northern California, the Southwest from the Midwest.

Cultural Landscape

The contemporary cultural landscape approach in geography—sometimes called the regional studies approach—was initiated in France by Paul Vidal de la Blache (1845–1918) and Jean Brunhes (1869–1930). It was later adopted by several American geographers, including Carl Sauer and Robert Platt (1880–1950). These geographers argued that each region has its own distinctive landscape that results from a unique combination of social relationships and physical processes. Within a region the people, activities, and environment will display similarities and regularities within a region and differ in some way from those of other regions.

A region gains uniqueness from possessing not a single human or environmental characteristic but a combination of them. Not content to merely identify these characteristics, geographers seek relationships among them. Geographers recognize that in the real world, characteristics are integrated.

The fundamental principle underlying the cultural landscape approach is that people are the most important agents of change of Earth's surface. The distinctive character of a particular landscape may derive in part from natural features, such as vegetation and soil. However, the physical environment is not always the most significant factor in human decisions. People can fashion a landscape by superimposing new forms on the physical environment.

For example, the critical factor in selecting a site for a cotton textile factory is not proximity to a place where cotton is grown. A more important factor in selecting a suitable location is access

to a supply of low-cost labor. Economic systems, political structures, living arrangements, religious practices, and human activities can produce distinctive landscapes that do not stem primarily from distinctive physical features.

The geographer's job is to sort out the associations among various social characteristics, each of which is uniquely distributed across Earth's surface. For example, geographers conclude that political unrest in the Middle East, Eastern Europe, and other areas derives in large measure from the fact that the distributions of important features, such as ethnicity and resources, do not match the political boundaries of individual countries.

Types of Regions

The designation of "region" can be applied to any area larger than a point and smaller than the entire planet. But geographers most often apply the concept at one of two scales—either several neighboring countries that share important features, such as those in Latin America, or many localities within a country, such as those in southern California. A particular place can be included in more than one region depending on how the region is defined. Geographers identify three types of regions—formal, functional, and vernacular.

FORMAL REGION. A formal region, also called a uniform region or a homogeneous region, is an area within which everyone shares in common one or more distinctive characteristics. The shared feature could be a cultural value such as a common language, an economic activity such as production of a particular crop, or an environmental property such as climate. In a formal region the selected characteristic is present throughout.

Some formal regions are easy to identify, such as countries or local government units. Montana is an example of a formal region, characterized by a government that passes laws, collects taxes, and issues license plates with equal intensity throughout the state. The formal region of Montana has clearly drawn and

legally recognized boundaries, and everyone living within them shares the status of being subject to a common set of laws.

In other kinds of formal regions a characteristic may be predominant rather than universal. For example, the North American wheat belt is a formal region in which wheat is the most commonly grown crop, but other crops are grown there as well. And the wheat belt can be distinguished from the corn belt—a region where corn is the most commonly grown crop.

Similarly, we can distinguish formal regions within the United States characterized by a predominant voting for Republican candidates, although Republicans do not get 100 percent of the votes in these regions—nor in fact do they always win. In formal regions characterized by a predominant voting for Democrats, the Democratic candidates do not get 100 percent of the votes (Figure 1-10 left). However, in a presidential election, the candidate with the largest number of votes receives all of the electoral votes of a state, regardless of the margin of victory. Consequently, a state that usually has Republican electors can be considered a Republican state (Figure 1-10 right).

Geographers typically identify formal regions to help explain broad global or national patterns, such as variations in religions and levels of economic development. The characteristic selected to distinguish a formal region often illustrates a general concept rather than a precise mathematical distribution.

A cautionary step in identifying formal regions is the need to recognize the diversity of cultural, economic, and environmental factors, even while making a generalization. Problems may arise because a minority of people in a region speak a language, practice a religion, or possess resources different from those of the majority. People in a region may play distinctive roles in the economy and hold different positions in society based on their gender or ethnicity.

FUNCTIONAL REGION. A functional region, also called a nodal region, is an area organized around a node or focal point. The characteristic chosen to define a functional region dominates

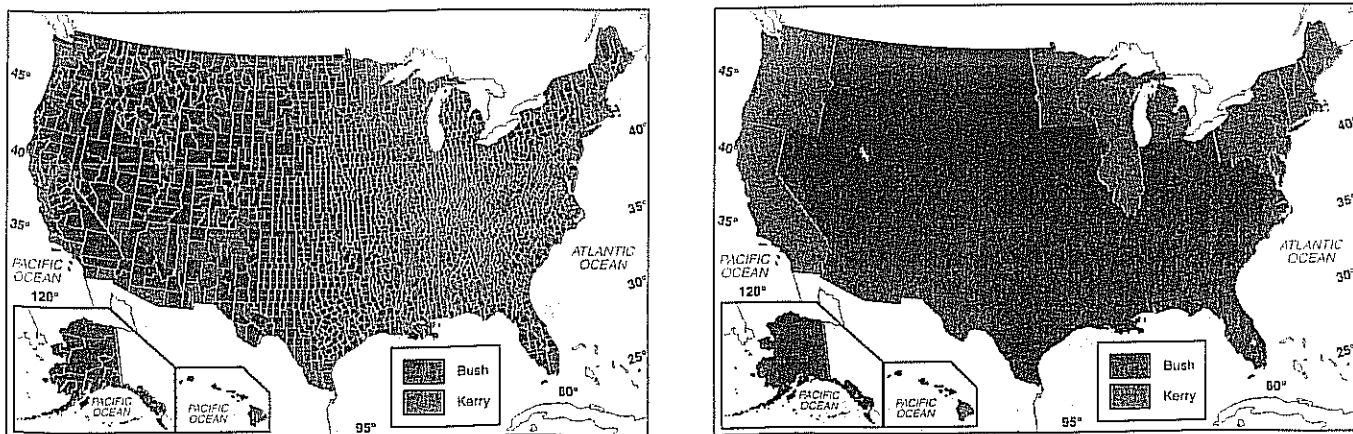


FIGURE 1-10 Regional differences in 2004 U.S. Presidential Election. The two maps show the winner by county (left) and state (right). The state map shows two broad regions, with Northeast and West Coast voters preferring Kerry and the voters in the South and interior West preferring Bush. Although Kerry won 48 percent of the votes nationally, the county map shows that Kerry's voters were clustered in about one-sixth of the country's land area (including big cities), whereas Bush's voters were dispersed across a much more extensive land area (including sparsely settled rural areas). Bush won 60 percent of the rural vote, whereas Kerry carried 60 percent of the big city vote.

at a central focus or node and diminishes in importance outward. The region is tied to the central point by transportation or communications systems or by economic or functional associations.

Geographers often use functional regions to display information about economic areas. The region's node may be a shop or service, and the boundaries of the region mark the limits of the trading area of the activity. People and activities may be attracted to the node, and information may flow from the node to the surrounding area.

An example of a functional region is the circulation area of a newspaper. A newspaper dominates circulation figures in the city in which it is published. Farther away from the city, fewer people read that newspaper, whereas more people read a newspaper published in a neighboring city. At some point between the two cities, the circulation of the newspaper from the second city equals the circulation of the original newspaper. That point is the boundary between the nodal regions of the two newspapers.

Other examples of functional regions include the reception area of a television station and the trading area of a department store. A television station's signal is strongest at the center of its service area, becomes weaker at the edge, and eventually can no longer be distinguished from snow (Figure 1-11). A department store attracts fewer customers from the edge of a trading area, and beyond that edge customers will most likely choose to shop elsewhere.

New technology is breaking down traditional functional regions. Newspapers such as *USA Today*, *The Wall Street Journal*, and *The New York Times* are composed in one place, transmitted by satellite to printing machines in other places,

and delivered by airplane and truck to yet other places. Television stations are broadcast to distant places by cable or satellite. Customers can shop at distant stores by mail or Internet.

VERNACULAR REGION. A vernacular region, or perceptual region, is a place that people believe exists as part of their cultural identity. Such regions emerge from people's informal sense of place rather than from scientific models developed through geographic thought.

A useful way to identify a perceptual region is to get someone to draw a mental map, which is an internal representation of a portion of Earth's surface. A mental map depicts what an individual knows about a place, containing personal impressions of what is in a place and where places are located. A student and a professor are likely to have different mental maps of a college campus, based on differences in where they work, live, and eat, and a senior is likely to have a more detailed and "accurate" map than a first-year student.

As an example of a vernacular region, Americans frequently refer to the South as a place with environmental, cultural, and economic features perceived to be quite distinct from the rest of the United States. Many of these features can be measured. Economically, the South is a region of high cotton production and low high school graduation rates. Culturally, the South includes the states that joined the Confederacy during the Civil War and where Baptist is the most prevalent religion. Environmentally, the South is a region where the last winter frost occurs in March, and rainfall is more plentiful in winter than in summer (Figure 1-12).

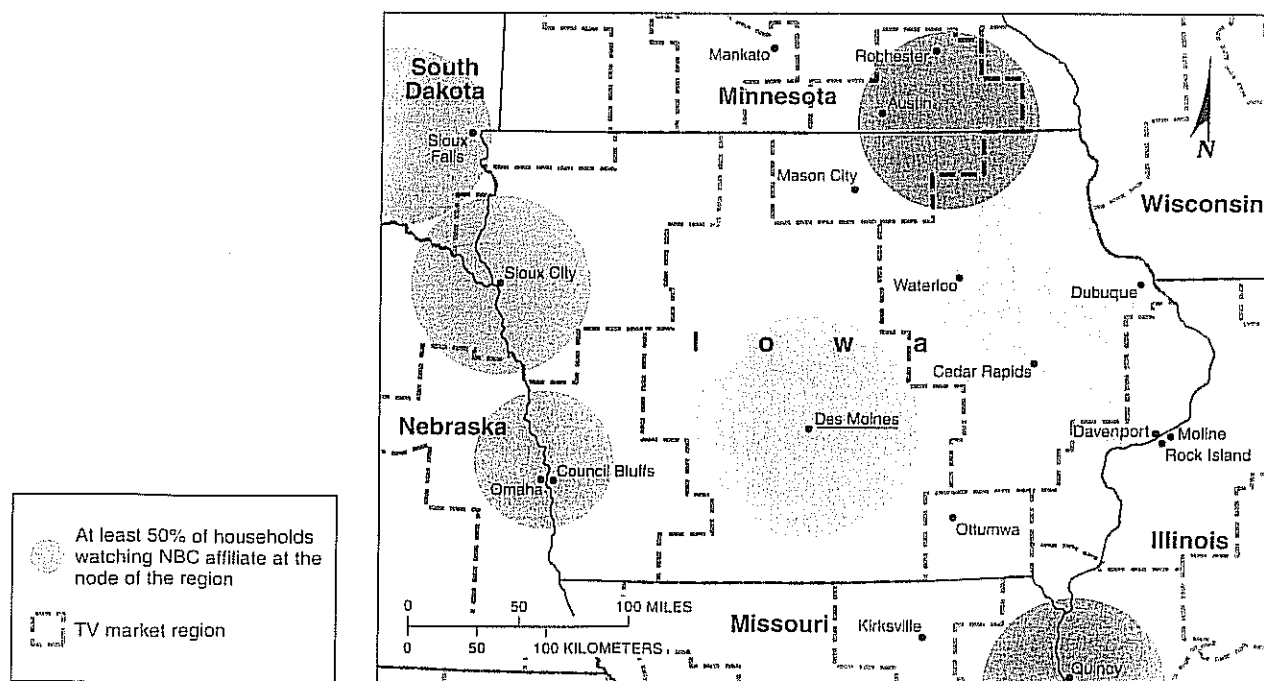


FIGURE 1-11 Formal and functional regions in Iowa. The state of Iowa is an example of a formal region. The areas of dominant influence (ADIs) for different television stations within Iowa are examples of functional regions. In several of the functional regions, the node—the TV station—is in an adjacent state. Functional regions frequently overlap the formal regions delineated by state or national boundaries.

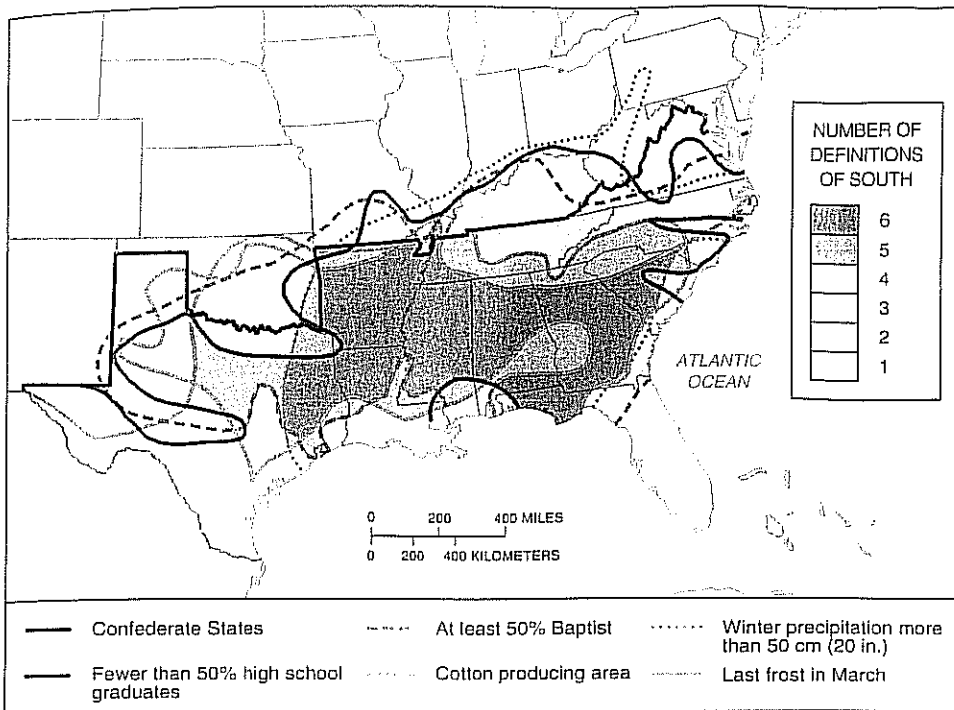


FIGURE 1-12 Defining the South as a vernacular region. The South is popularly distinguished as a distinct vernacular region within the United States according to a number of factors, such as mild climate, propensity for growing cotton, and importance of the Baptist Church. Analysts have difficulty fixing the precise boundary of the South. Kentucky did not join the Confederacy. Northern Virginia has April frosts. The people of Southern Florida, Louisiana, and Texas are predominantly Roman Catholic. When environmental, economic, and cultural factors are measured, much of the territory thought to be part of the perceptual region of the South is actually excluded. Although the region's boundaries are muddled, the South does in fact stand out from the rest of the country when several factors are mapped together.

Southerners and other Americans alike share a strong sense of the American South as a distinctive place that transcends geographic measurement. The perceptual region known as the South is a source of pride to many Americans—and for others it is a place to avoid.

Spatial Association

A region can be constructed to encompass an area of widely varying scale, from a very small portion of Earth to a very large portion. Different conclusions may be reached concerning a region's characteristics depending on its scale; for example, consider the percentage of Americans who die each year from cancer. Death rates vary widely among scales within the United States (Figure 1-13):

- At the scale of the United States, the eastern regions have higher levels of cancer than the western ones.
- At the scale of the state of Maryland, the city of Baltimore and counties in the east have higher levels of cancer than the western and suburban counties.
- At the scale of the city of Baltimore, Maryland, lower levels of cancer are found in the zip codes on the north side.

Maps showing regions of high and low cancer rates do not communicate useful information to someone who knows little about the regions. To explain why regions possess distinctive features, such as a high cancer rate, geographers try to identify cultural, economic, and environmental factors that display similar spatial distributions. Geographers conclude that factors with similar distributions have spatial association. By integrating other spatial information about people, activities, and environments, we can begin to see factors that may be associated with regional differences in cancer.

At the national scale, regions in the east may have higher cancer rates in part because the distribution of cancer is spatially associated with the distribution of factories. Northeastern states may also have higher cancer rates because prevailing winds carry pollutants from factories in midwestern states. Residents of southeastern states may have high cancer rates because, with lower levels of education and income, they may be less aware of the risks associated with activities such as smoking and less able to afford medical care to minimize the risk of dying from cancer.

Similarly, at the state scale, variations in regions may be associated with a combination of economic, cultural, and environmental factors. Baltimore City may have higher cancer rates because of a concentration of people with lower levels of income and education. People living in the rural Eastern Shore region may be exposed to runoff of chemicals from farms into the nearby Chesapeake Bay, as well as discharges carried by prevailing winds from factories further west.

At the urban scale, again, a combination of economic, cultural, and environmental factors may form a spatial association with the distribution of cancer. The zip codes on the south side of Baltimore City contain a higher percentage of people with low incomes, who are closer to the city's factories and port facilities.

Regional Integration of Culture

In thinking about why each region on Earth is distinctive, geographers refer to culture, which is the body of customary beliefs, material traits, and social forms that together constitute the distinct tradition of a group of people. Geographers distinguish groups of people according to important cultural characteristics, describe where particular cultural groups are distributed, and offer reasons to explain the observed distribution.